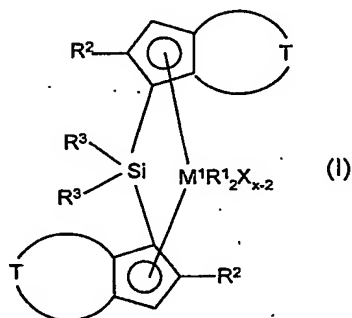
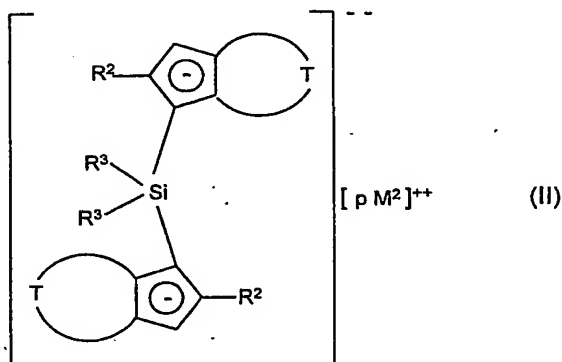


We claim:

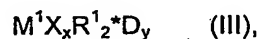
1. A process for the racemoselective preparation of silicon-bridged dialkyl-ansa-metallocenes of the formula (I)



which comprises reacting a ligand starting compound of the formula (II)



with a transition metal dialkyl compound of the formula (III)



where

$M^1$  is an element of group 4, 5 or 6 of the Periodic Table of the Elements,

$R^1$  are identical  $C_1$ - $C_{20}$ -alkyl or  $C_7$ - $C_{40}$ -arylalkyl radicals,

$X$  are identical or different halogens,

$R^2$  are identical or different  $C_1$ - $C_{40}$  radicals,

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$R^3$  are identical or different  $C_1$ - $C_{40}$  radicals,

$T$  is a divalent  $C_1$ - $C_{40}$  group which together with the cyclopentadienyl ring forms a further saturated or unsaturated ring system which has a ring size of from 5 to 12 atoms, where  $T$  may contain the heteroatoms Si, Ge, N, P, O or S in the ring system fused onto the cyclopentadienyl ring,

$M^2$  is Li, Na, K, MgCl, MgBr, MgI, Mg or Ca,

$D$  is an uncharged Lewis base ligand,

$x$  is equal to the oxidation number of  $M^1$  minus 2,

$y$  is from 0 to 2

and

$p$  is 1 in the case of doubly positively charged metal ions or 2 in the case of singly positively charged metal ions or metal ion fragments.

2. A process as claimed in claim 1, wherein

$T$  is a 1,3-butadiene-1,4-diyl group which may be unsubstituted or be substituted by from 1 to 4 radicals  $R^4$ , where the two 1,3-butadiene-1,4-diyl groups may be different,

$R^4$  are identical or different  $C_1$ - $C_{20}$  radicals,

$M^1$  is titanium, zirconium or hafnium,

$R^1$  are identical  $C_1$ - $C_5$ -alkyl or  $C_7$ - $C_{20}$ -arylalkyl radicals,

$X$  is halogen and

$R^2$ ,  $R^3$ ,  $M^2$ ,  $D$ ,  $p$ ,  $x$  and  $y$  are as defined in claim 1.

3. A process as claimed in claim 1 or 2, wherein the transition metal dialkyl compound of the formula (III) is produced at above  $-30^\circ\text{C}$  by combining a compound  $M^1X_{x+2}$  with from 2 to 2.5 equivalents of a compound  $R^1M^3$  in the presence of a ligand compound  $D$ , where

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$M^3$  is  $Li^+$ ,  $Na^+$ ,  $K^+$ ,  $MgCl^+$ ,  $MgBr^+$ ,  $MgI^+$ ,  $\frac{1}{2} [Mg^{++}]$  or  $\frac{1}{2} [Zn^{++}]$ , and

the other variables are as defined in claim 1 or 2.

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4. A process as claimed in claim 1 or 2, wherein the ligand starting compound of the formula (II) or (V) is combined with the transition metal dialkyl compound of the formula (III) at above  $-30^\circ C$ .

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5. A process as claimed in claim 4, wherein the reaction mixture is maintained at from  $30^\circ C$  to  $150^\circ C$  for a period of at least 10 minutes after the reaction components have been combined.

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6. A process as claimed in any of claims 1 to 5, wherein the reaction is carried out in an organic solvent or solvent mixture which comprises at least 10% by volume of an ether.

7. A process as claimed in any of claims 1 to 6, wherein the racemoselectivity = (proportion of rac - proportion of meso)/(proportion of rac + proportion of meso) is greater than zero.

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8. The use of a transition metal dialkyl compound of the formula (III) for the racemoselective preparation of silicon-bridged dialkyl-ansa-metallocenes of the formula (I).

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